WHAT IS CLAIMED IS

1. A method for detecting the presence of a metallic species in a hydrocarbon matrix, comprising (a) contacting a hydrocarbon matrix containing an organometallic compound with a colorimetric detection material comprising a colorimetric sensitizer chemical able to react with the metal of the organometallic compound; (b) causing a reaction between the metal from the organometallic compound and the colorimetric sensitizer chemical sufficient to form an organometallic complex, and (c) detecting the presence of the organometallic complex.
2. The method of claim 1, wherein the detection material is exposed to sufficient energy to at least partially liberate the metal of the organometallic compound from the compound onto or within the detection material.
3. The method of claim 2, wherein the energy is in the form of heat.
4. The method of claim 2, wherein the energy is in the form of sonic radiation.
5. The method of claim 2, wherein the energy is from a chemical reaction due to a chemical added.
6. The method of claim 2, wherein the energy is in the form of ultraviolet radiation.
7. The method of claim 2, wherein the energy is in the form of sunlight.
8. The method of claim 2, wherein the energy is radiation of a wavelength and intensity (measured in joules/mole) absorbed by the organometallic compound sufficient to decompose said compound.
9. The method of claim 1, wherein the hydrocarbon matrix is selected from the group consisting of gasolines, petroleum distillate fuels, kerosene, diesel fuel, biodiesel fuel, fuel oil, crude oil,

refined oil, lubricants, engine oils, transmission fluids, hydraulic oils, aviation fuels, cutting fluids, and distillate bottoms.

10. The method of claim 1, wherein the hydrocarbon matrix is gasoline.

11. The method of claim 1, wherein the hydrocarbon matrix is diesel fuel.

12. The method of claim 1, wherein the metal of the organometallic compound is selected from the group consisting of Mn, Cr, Fe, Co, Cu, Zr, Mo, Ru, Rh, Pd, La, Hf, Re, Os, Ir, Pt, Au, Hg, Ce, lanthanides, and actinides.

13. The method of claim 1, wherein the presence of the organometallic complex is detected by a photometer.

14. The method of claim 1, further comprising the step of combining the detection material from step (b) with an amount of dilute basic solution to the at least partially liberated metal of the organometallic compound.

15. The method of claim 14, further comprising the step of combining the basified metal with a dilute acid to oxidize the metal to an oxidation state able to react with the colorimetric sensitizer chemical.

16. The method of claim 1, wherein the concentration of the organometallic compound in the hydrocarbon matrix is determined by translating the colorimetrically detected color intensity of the organometallic complex into a metal concentration value.

17. The method of claim 1, wherein the metal of the organometallic compound is manganese.

18. The method of claim 16, wherein the organometallic compound is methyl cyclopentadienyl manganese tricarbonyl.

19. The method of claim 1, wherein the hydrocarbon matrix is selected from the group consisting of gasolines, diesel fuels, biodiesel fuels, fuel oil, industrial hydrocarbonaceous waste, and distillate fuels.

20. A detection system for detecting the presence of metal in a hydrocarbon matrix, said detection comprising a colorimetric detection material comprising at least one colorimetric sensitizer chemical able to react with a metal of an organometallic compound in the hydrocarbon matrix.

21. The detection system of claim 19, further comprising a source of radiation sufficient to liberate the metal in the organometallic compound from the compound.

22. The detection system of claim 19, further comprising a means for colorimetrically detecting the presence of a metal.

23. The detection system of claim 19, further comprising one or more reagents effective in combining the metal from the organometallic compound with the at least one colorimetric sensitizer chemical.